

WHAT IS CLAIMED IS:

1. A scanning type display optical system comprising:

5 a deflection device deflecting a light beam from a light source in two dimensions; and

an image-forming optical system forming an image with the light beam deflected by the deflection device;

10 wherein a direction from which the light beam coming from the light source is incident on the deflection device is oblique with respect to at least one of the two deflection axes of the deflection device; and

15 the image-forming optical system comprises an optical element which is tilted and/or shifted with respect to a center axis of a two-dimensional deflection range over which the light beam is deflected by the deflection device.

2. The scanning display optical system according to claim 1,

20 wherein the image-forming optical system comprises a first optical element having negative optical power, which is arranged on the side closest to the deflection device, a second optical element having positive optical power, which is arranged on the side of an image plane, and a third optical element having positive power, which is arranged between the
25 first optical element and the second optical element;

wherein the third optical element is tilted and shifted with respect to the center axis of the two-dimensional

deflection range over which the light beam is deflected by the deflection device, to the side on which the light beam coming from the light source is incident on the deflection device; and

the second optical element is shifted to the opposite of
5 the side on which the light beam coming from the light source is incident on the deflection device.

3. The scanning type display optical system according to claim 2,

10 wherein the second optical element is a meniscus lens whose convex surface faces toward the deflection device; and the third optical element is a meniscus lens whose convex surface faces toward an image plane.

15 4. The scanning type display optical system according to claim 1,

wherein an incident angle of the light beam on an image plane by the image-forming optical system is 5° or less.

20 5. The scanning type display optical system according to claim 1,

further comprising a reflective surface guiding the light beam from the light source so that the light beam is incident on the deflection device from a direction oblique with respect
25 to the deflection axes.

6. The scanning type display optical system according to

claim 1,

further comprising a converging optical element arranged between the light source and the image-forming optical system, and converting the light beam into converging light beam.

5

7. The scanning type display optical system according to claim 6,

further comprising a reflective surface guiding the light beam from the converging optical element so that the light beam is incident on the deflection device from a direction oblique with respect to the deflection axes.

10

8. The scanning type display optical system according to claim 2, wherein the following condition is satisfied:

15

$$v_1 < v_2$$

where v_1 is the Abbe number of the first optical element and v_2 is the Abbe number of the second and third optical element.

9. The scanning type display optical system according to claim 1, further comprising an eyepiece optical system guiding deflected light beam from the image-forming optical system to an eye of an observer.

20

10. A scanning type display optical system comprising:

25

a deflection device deflecting a light beam from a light source in two dimensions; and

an image-forming optical system forming an image with the

light beam deflected by the deflection device;

wherein the image-forming optical system comprises a first optical element having negative optical power, which is arranged on the side closest to the deflection device, and a
5 second optical element having positive optical power, which is arranged on the side closest to an image plane; and

the second optical element is a meniscus lens whose convex surface surfaces toward the deflection device.

10 11. The scanning type display optical system according to claim 10,

wherein an incident angle of the light beam on the image plane by the image-forming optical system is 5° or less.

15 12. The scanning type display optical system according to claim 10,

further comprising a reflective surface guiding the light beam from the light source to the deflection device.

20 13. The scanning type display optical system according to claim 10,

further comprising a converging optical element arranged between the light source and the image-forming optical system, and converting the light beam into converging light beam. .

25

14. The scanning type display optical system according to claim 13,

further comprising a reflective surface guiding the light beam from the converging optical element to the deflection device.

- 5 15. The scanning type display optical system according to claim 10, wherein the following condition is satisfied:

$$v_1 < v_2$$

where v_1 is the Abbe number of the first optical element and v_2 is the Abbe number of the second optical element.

10

16. The scanning type display optical system according to claim 10, wherein the following condition is satisfied:

$$0.4 \leq D_1/D \leq 0.8$$

where D is a distance from the deflection device to the image
15 plane of the image-forming optical system and D_1 is a distance from the deflection device to an incident surface of the first optical element.

17. The scanning type display optical system according to
20 claim 10, wherein the following condition is satisfied:

$$0.05 \leq D_2/D \leq 0.3$$

where D is a distance from the deflection device to the image
plane of the image-forming optical system and D_2 is a distance
from an incident surface of the second optical element to the
25 image plane of the image-forming optical system.

18. The scanning type display optical system according to

claim 10, further comprising an eyepiece optical system guiding deflected light beam from the image-forming optical system to an eye of an observer.